Amendments to the Drawings

The Examiner objected to the sole figure submitted with the above instant application because it was not labeled "Figure 1". Accordingly, please substitute the enclosed Fig. 1, which have been labeled "Replacement Sheet" as required, for the previously submitted sole figure.

Remarks

Claims 11 through 21 are now pending.

Applicants hereby affirm that claims 6 through 10 have been withdrawn from further consideration by the Examiner as being drawn to or as containing a non-elected invention.

New claim 13 is provided as a revised claim 1 (now cancelled) directed to an elected invention, and claims 11 and 12 have been amended to depend from new claim 13.

New claims 14 through 21 are provided to replace various of the elected claims, including claims 2 through 5 (now cancelled), in order to more to more clearly provide an orderly sequence of claims dependent from new claim 13.

The Rejection

The following patents have been relied upon to reject various of the Applicants' claims:

U.S. Patents

6,220,323 Sandstrom et al. (Sandstrom)

Foreign Patent Publication

Japan 08-188672 Midorikawa et al. (Midorikawa) (machine translation)

It is believed that the Examiner's objections to the Applicants' claims as to informalities have been remedied by appropriate revisions of the claims.

Objections to Section Headings in the Specification Under 37 C.F.R. 1.77(b)

The Examiner has objected to the Section Headings in the Applicants' specification as not complying with provisions of 37 C.F.R. 1.77(b).

While the Examiner's helpful observations are appreciated, it is noted that 37 C.F.R. 1.77(b) is presented in a sense of a recommended format and not as an obligatory requirement.

Accordingly, it is requested that the Section Headings of the Applicants' specification

not be changed in a sense that they are sufficiently descriptive and, further, in a sense of avoiding a possibility of adding new matter to the specification.

Objection to Subject Heading for the Drawings Under 35 C.F.R. 1.74

The Examiner has objected to the Applicants' specification as not having a proper subject heading for a "Brief Description of the Drawing" in a sense of 35 C.F.R. 1.77(b).

It is believed that the passage and accompanying Section Heading in the Applicants' specification on Page 8, Lines 22 through 27, complies with the provisions of 35 C.F.R 1.77(b) and that a revision of the Applicants' specification should not be required.

Rejections Under 35 U.S.C. Section 112

It is believed that the Examiner's objections to various claims under 35 U.S.C. Section 112, second paragraph, have been remedied.

Rejections Under 35 U.S.C. Section 103

Claims 1, 2, 4, 11 and 12, (prior to their amendment, cancellation or replacement by new claims), have been rejected under 35 U.S.C. Section 103(a) as being obvious in view of Midorikawa taken in view of Sandstrom.

A reconsideration of the rejection of the Applicants' claims is requested in view of the Applicants' revised claims and comments herein.

The Invention

It is important to appreciate that the invention of the Applicants' claims 13 through 21 is directed to a heavy duty tire with a tread of a rubber composition which serves as a thermally conductive path for heat dissipation through the tread rubber itself.

As stated in the Applicants' specification (Page 8, Lines 3 through 6),

> "An essential part of the present invention is the use of a mixture of at least two diverse carbon blacks having both a significantly different structure (significantly DBP value) and a significantly different surface area and size (significantly different NSA value)."

In order to accomplish the heat conductivity feature for the tire tread while also providing good reinforcement of the tread rubber, the rubber composition is required to contain a combination of diverse carbon blacks in specified amounts.

In particular, the combination of carbon blacks requires specified combinations of:

1. Category A carbon blacks which are considered by the Applicants as being a relatively non-reinforcing carbon blacks for rubber (relative to Categories B and C carbon blacks), having an NSA value of from 10 to 30 m^2/g and a DBP value of from 10 to 50 $cm^3/100g$, exemplary of which are N880, N990 and Regal 85 carbon blacks which are depicted in the Applicants' Drawing;

2. Category B (B-1 and B-2) carbon blacks which are considered by the Applicants as being highly reinforcing carbon blacks for rubber;

Such B-1 carbon blacks have an NSA value of from 180 to 600 m^2/g and a DBP value of from 50 to 250 $cm^3/100g$, exemplary of which are N472, Raven 2000, Raven 5000 and Raven 7000 carbon blacks which are depicted in the Applicants' Drawing.

Such B-2 carbon blacks have an NSA value of from 80 to 120 m^2/g and a DBP value of from 180 to 220 $cm^3/100g$, exemplary of which is an acetylene black which is depicted in the Applicants' Drawing.

3. Category C carbon blacks which are considered by the Applicants as being moderately reinforcing carbon blacks for rubber, having an NSA value of from 30 to 70 m^2/g and a DBP value of from 50 to 150 $cm^3/100g$, exemplary of which are N110, N220, N229, N326, N330 and N347 which are depicted in the Applicants' drawing.

Discussion

The cited Midorikawa patent publication relates to a tire with an outer tread layer (only the tread cap layer) reportedly having a high thermal conductivity in which an acetylene

carbon black is exemplified having an N_2SA value of greater than 70 m^2/g (*with no restrictive upper limit recited*) and 24M4 DBP oil absorption value 80 ml/100g or more *(with no restrictive upper limit recited*).

Examples of acetylene carbon blacks are given in Midorikawa of acetylene carbon blacks having:

(A) N^2SA value of 132 m^2/g and DBP of 100 ml/100g, (*which is apparently excluded by all of the Applicants' Category A, B-1, B-2 and C carbon blacks*), and

(B) N^2SA value of 92 m^2/g and DBP of 101 ml/100g, *which is apparently excluded by all of the Applicants' Category A, B-1, B-2 and C carbon blacks*). (Emphasis added.)

Further, and significantly, Midorikawa does not teach or suggest any blend of specific amounts of the Applicants' required combination of Category C (medium reinforcing) carbon black and one or more of Category A (relatively non-reinforcing) and Category B (high reinforcing) carbon blacks which is an essential element of the Applicants' claimed invention.

Accordingly, it is considered herein that Midorikawa is materially deficient by itself for rendering the Applicants' claimed invention obvious in the sense of 35 U.S. C. Section 103(a) and that a prima facie case of obviousness of the Applicants' claimed invention is not made out by Midorikawa.

The cited Sandstrom reference relates, in one aspect, to a tire with a tread of a rubber composition which contains carbon black and/or silica reinforcement which is further required to contain particulate calcium carbonate and selected modifiers. It is not seen that Sandstrom teaches or suggests any combination of the Applicants' required Category A, Category B-1, Category B-2 and Category C carbon blacks in a tire tread rubber composition.

Accordingly, it considered herein that Sandstrom does not correct the aforesaid

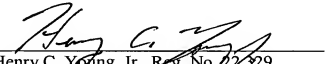
material deficiency of Midorikawa and, moreover, is also materially deficient for a purpose of rejecting the Applicants' claimed invention as being obvious in the sense of 35 U.S.C. Section 103(a).

Further, it is contended that a prima facie case of obviousness of the Applicants' claimed invention is not made out by the combination of Midorikawa and Sandstrom in the sense of 35 U.S.C. Section 103(a).

Conclusion

It is contended that the Applicants' claimed invention is not obvious in view of any of Midorikawa and Sandstrom, or their combination in the sense of 35 U.S.C. Section 103(a) and is therefore patentably distinct from the cited references.

Respectfully submitted,



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